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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,833	08/14/2001	Fumio Matsui	MATSUI 5	8102

7590 03/18/2004

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding:

Office Action Summary	Application No.	Applicant(s)	
	09/928,833	MATSUI ET AL.	
	Examiner	Art Unit	
	Martin J Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/05/04</u> | 6) <input type="checkbox"/> Other: _____ |

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1. The response of the applicant has been read and given careful consideration. Responses to the arguments of the applicant are presented after the first rejection to which they are directed.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamer, "The Cyanine Dyes and Related Compounds", pp. 244-269, 274-279 and 398-433 (1964).

See the heptamethine dyes disclosed on pages 244-269 (straight chain) and 274-279 (cyclic containing chain) for claims 15 and 16. These are the same class of dyes shown in formulae 1-20 of the instant specification. See the styryl dyes on pages 398-433 which include those disclosed in formulae 25-33 in the instant specification. See dye VIII on page 252 (comparable to chemical formula 11 of the instant specification) and XIX and text on pages 267-268 (comparable to formula 19 of the instant specification) See also formula XV on page 277. See dye I on page 398, which is comparable to formula 25 of the instant specification.

Perchlorate ions as counterions for cyanine dyes are described on page 253, 262, 263 and 267 and the use of toluenesulfonate as a counterion is disclosed on pages 278 and 279. Perchlorate ions as counterions for styryl dyes are described on page 413 and 415 and the use of methylsulfonate is disclosed on pages 412, 420 and 427.

It would have been obvious to one skilled in the art to modify the cyanine and styryl dyes exemplified by Hamer, "The Cyanine Dyes and Related Compounds" by using other old and well known counterions for these dyes in place of other counter ions based upon the disclosure of equivalence.

The examiner would like to point out that as the reference was published in 1964, the applicants certainly lack any claim to the broad classes of dyes disclosed and somewhat embraced by the claims. The examiner is of the opinion that the applicant is extremely unlikely to gain patent coverage for any embodiments beyond possibly the method claims as the dyes and optical recording media containing them are old and well known in the art.

The applicant argues that the recitation of the counterions render the claims allowable over this reference. **The examiner has withdrawn the anticipation and places the burden of showing the particular benefits of using these dyes argued on page 13 of the response with the specific counterions recited over the dyes disclosed in the prior art.** The examiner notes that the other counterions described in the specification include Br, I, Cl, F and notes that there is no **evidence in the record** that the counterions now recited in the claims modify the performance of the dyes in any way.

4. Claims 1, 2, 4-7, 16 and 18 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Ueno et al. '163.

Comparative example 1 in column 14 discloses the use of a compound embraced by the language of formula 1 of the claims and it is used in an optical recording medium. The language of claim 5 is considered intended use. Examples in table 4 includes an optical recording medium that uses dye 21 disclosed in table 2, which is comparable to formula 34 of the instant specification.

The applicant argues that the dye shown in column 14 of the reference does not have a counterion. The examiner points to the perchlorate anion on the right side of the formula (V) and therefore finds this position without merit. The applicant must be aware that all heptamethine dyes (seven CH groups between the terminal moieties absorb in the same region.) This is commonly used in undergraduate laboratory experiments to illustrate the famous “particle in a box” of quantum mechanics. The applicant might want to evaluate the structure of the cyanine dyes of the comparative example with that of formula 11 of the instant application. The variation in the substituents will only cause a slight (~10 nm) shift in the absorption maxima. The heptamethine dye of chemical formula 2 is disclosed in the instant specification as having maxima at 730 and 820 nm which supports the examiner position concerning the inherency of the spectral absorption properties of dyes. The examiner notes that the compounds used in the samples of table 4 are embraced by formula 3 in claim 4. Again the spectral absorption properties are considered inherent. The rejection stands.

5. Claim 1 and 5-7 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Namba et al. '231.

Namba et al. '231 teach the use of mixtures of dyes to cover the entire spectral range. The NK and IR dyes of table III are cyanine dyes with perchlorate counterions. The absorption

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maxima of the dyes is given in tables I,II and III and the wavelength of useful lasers is disclosed in the table in column 3.

The applicant argues that they are not aware of what these dyes are. The examiner points them to table III which give chemical names for some cyanine dyes. The claims rejected under this heading do not preclude any dyes and the absorption maxima are clearly described in table III and the applicant neglect the treat the use of mixtures set forth in the examples. The examiner notes that the applicant examples all use mixtures of dyes, which includes chemical formula 39. It may be this compound which give the high absorption. The examiner assures the applicant that the NK and IR dyes are cyanine dyes, but they use different counterions that recited in claim 2, so cannot be applied to claim 2. The absorption maxima are clearly disclosed and are evidenced to meet the absorption limitations articulated in claim 1, but the limitations of claim 1 do not require or exclude any dye class at all.

6. Claims 1,2,5-9, 12-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Namba et al. '231.

It would have been obvious to one skilled in the art to modify the examples to use other dyes, such as the two cyanine dyes disclosed in table III for those specifically used in the examples with a reasonable expectation of achieving a useful optical recording medium and further it would have been obvious to one of ordinary skill in the art to use short wavelength lasers, such as the Ar ion or the He-Cd laser with the media exemplified with a reasonable expectation of achieving useful data storage based upon the disclosure and the absorption spectra of the recording layers.

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7. Claims 1, 5-9, 13 and 14 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Nanba et al. JP 60-204396.

Nanba et al. JP 60-204396 teaches the absorption of dyes D32 and D36 in the table on page 29. The absorption maxima of dye D36 is 880 nm and the reflection maxima is 970 nm. The wavelength used in recording is 830 nm (page 29, left column) for the examples disclosed in table 1 on page 30. Example 3 uses dye D36, which has absorption maxima at wavelengths greater than 830 nm. The use of dyes which have an absorption maxima within the range 40 nm shorter and 70 nm longer than the writing wavelength is disclosed in the abstract. The use of lasers including HeNe (632.8 nm), Argon ion (488, 514.5 nm), HeCd (442 and 325 nm) is disclosed on page 28 in the lower left hand column.

The applicant labors under the illusion that the claims are methods of use claims. The examiner notes that this is an intended use limitation and points out that the lasers described as useful with these optical recording media (HeNe (632.8 nm), Argon ion (488, 514.5 nm), HeCd (442 and 325 nm) is disclosed on page 28 in the lower left hand column) support the examiner's contention of their inherent ability to be used with shorter wavelength lasers. The applicant really fails to appreciate the teachings of Nanba et al. JP 60-204396 which clearly teaches that the wavelength of the laser used in recording can be 70 nm less than the absorption maxima of the dye. This is directly parallel to the teachings at [0026] of the applicants specification/prepub. Please note the counterions.

8. Claim 1, 2, 5-9, 12-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanba et al. JP 60-204396.

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It would have been obvious to one skilled in the art to use other disclosed cyanine dyes and/or counterions from the table on pages 9-14 and to use these with appropriate disclosed lasers, such as the HeCd, Ar ion or HeNe, which have emissions at wavelengths up to 70 nm shorter than the maximum absorption of the dyes with a reasonable expectation of successfully writing data into the recording layer based upon the disclosure of using dyes which have absorption maxima up to 70 nm longer than the emission wavelength of the laser.

9. Claims 1, 5-9 and 12-14 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Umehara et al. JP 08-156408.

See examples (in translation) where the dyes B1 and B2 are heptamethine cyanine dyes with absorption maxima at 800 and 820 nm (table 1, [0035]) and are recorded using 780 nm lasers. In section [0030] it appears that a 635 nm laser was used to record data "it was record" and in section [0037-0038] it appears that a 630 nm HeNe laser was used to both record and reproduce/read the data.

The examiner notes that the (A) compounds used in the cited examples are embraced by formula 3 in claim 4. Again the spectral absorption properties are considered inherent. The rejection stands. The applicant also fails to treat the use of mixtures. The examiner notes that claim 1 does not exclude any particular dyes.

10. Claims 1, 2, 5-9, 12-14 and 16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Aihara et al. EP 0676751.

Aihara et al. EP 0676751 teaches examples 1-7 in table 1 on pages 21 and 22 (further description of the cyanine dyes on pages 16-20). The use of the resultant media with recording of data at 680 nm and 780 nm is disclosed with respect to table 2 on pages 23-34. Note that the

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structures are disclosed in the examples and cyanine dyes used in examples 1-3 have perchlorate anions.

The applicant still argues without an active recitation in claim 1, that that claim requires specific counterions. The applicant also ignores the fact that examples 1-3 have perchlorate anions (ClO_4^-). The rejection stands.

11. Claims 1,4-7 and 18 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Suzuki et al. '519.

see dyes disclosed in columns 6-11 and 13-14 for azo dye embodiments. See the cyanine dyes of column 15 for the cyanine dye embodiments. See also the examples using these.

The applicant still argues without an active recitation in claim 1, that that claim requires specific counterions. The rejection stands.

12. Claims 1,3,5-7, and 17 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Kanno GB 2329751.

See examples using styryl dyes and comparative examples 1 and 2 using cyanine dyes.

The applicant is directed to examples 1 and 2, which uses dyes I-2 shown on page 18, which uses a perchlorate anion.

13. Claims 1,4-8,11-15 and 18 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Yoshikawa et al. '143.

Example 6 uses an azo dye embraced by the formula corresponding to the azo embodiments of the instant claims and having an absorption wavelength of maximum absorption at 646 nm and uses a 633 nm HeNe laser to record data therein. (12/58-13/3). The other examples use compounds, which meet the limitations of the structure of formula 3 of the instant

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claims. The hydroxyl group meets the limitation of claim 18. The other recitations of formula 3 do not have these requirements and therefore the arguments lack the same scope as the claims.

13 Claims 1,2,5-7 and 16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 03-032884.

See dyes on page 6 with perchlorate counterions. See also examples 2 (page 8 upper right)

14 Claim 16 is rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 03-009884.

See dyes 4 and 5 on page 9 with triethylammonium cations.

15 Claims 1,2,5-7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 03-009884.

It would have been obvious to one skilled in the art to modify the recording media of the examples by using other disclosed dyes, such as dyes 4 or 5 with a reasonable expectation of achieving a useful optical recording medium.

16 Claims 1,2,5-7 and 16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 64-040388.

See examples 1 (perchlorate), 2 (tetrafluoroborate), 3 (perchlorate and arylsulfonate counterions) and other examples. Note the counter ions disclosed in the abstract.

Please note the absorption data including their absorption maxima.

17 Claims 1,2,5-7 and 16 are rejected under 35 U.S.C. 103(a) over JP 64-040388.

It would have been obvious to modify the examples by using other counter ions disclosed as useful, such as those in the abstract with a reasonable expectation of forming a useful optical recording medium.

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18 Claims 1,2,5-7 and 16 are rejected under 35 U.S.C. 103(a) over JP 10-119434.

See dyes HP9, HP8 (page 35) and HP2-5 (page 34). Useful counterions are disclosed. In the abstract.

It would have been obvious to modify the examples by using other counter ions disclosed as useful, such as those in the abstract with a reasonable expectation of forming a useful optical recording medium.

19 Claims 1,2,5-7 and 16 are rejected under 35 U.S.C. 103(a) over Saito et al. '089.

See dyes in twentieth and twenty first embodiments (cols 22-23). Useful counterions are disclosed in the abstract together with their benefits.

20 Claims 1,2,5-7 and 16 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Huditch et al. '584.

See examples 1, 11 and 12 for their cyanine dyes.

21 Claims 1-14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **any of the above cited references, in view of** Namba et al. '231.

It would have been obvious to modify the teachings of **any of the above cited references** by adding other dyes to extend their spectral sensitivity and to use them with shorter wavelength lasers as taught by Namba et al. '231 with a reasonable expectation of forming media useful with any laser system and so compatible with more optical recording media players or recorders.

What the applicant fails to appreciate is that the use of mixtures of dyes to extend the spectral response of the optical recording media is old and well known to be desirable as evidenced by Namba et al. '231 and that this dovetails nicely with the applicant's use of dye mixtures in the examples.

As discussed above, the dye of chemical formula 39 in the examples of the applicant may increase sensitivity in the spectral range desired, but that dye is not mentioned in the claims, so it cannot be relied upon to assert patentability.

22 Claims 1-3,5-10,12-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanno GB 2329751 and Namba et al. '231 and further in view of Hamer, "The Cyanine Dyes and Related Compounds", pp. 244-269,274-279 and 398-433 (1964), Huditch et al. '584, Saito et al. '089, JP 64-040388, JP 03-009884, JP 10-119434 or JP 03-032884

In addition to the basis provided above, the examiner asserts that it is old and well known in the art that cyanine and stryrl dyes are closely related as evidenced by Hamer, "The Cyanine Dyes and Related Compounds", pp. 244-269,274-279 and 398-433 (1964) and the examiner holds that it would have been obvious to one skilled in the art to modify Kanno GB 2329751 by using other counterions known to be useful with cyanine dyes such as those disclosed by Huditch et al. '584, Saito et al. '089, JP 64-040388, JP 03-009884, JP 10-119434 or JP 03-032884 with a reasonable expectation of forming a useful cyanine dyes and that the dye would be useful in optical recording.

23 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period


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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

24 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Martin J Angebrannndt
Primary Examiner
Art Unit 1756

03/11/2004